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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
GEBRESILASSIE, KIBROM K	

ART UNIT	PAPER NUMBER
2128	

DATE MAILED: 02/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/996,745	LICHTENBERG ET AL.	
	Examiner	Art Unit	
	Kibrom K. Gebresilassie	2128	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 November 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-42* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-42* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *09/10/02*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-42 have been presented for examination based on applicant's amendment filed on 22 November 2005.

2. Claims 1-42 remains rejected by the examiner.

Information Disclosure Statement

3. The information disclosure statement (IDS) submitted on 10 September 2002 is being considered by the examiner.

Response to Arguments

4. Applicants arguments filed on 22 November 2005 have been fully considered.

Regarding Applicant's response to Claim Objection: The examiner withdraws the objection of claims based on the correction made by applicants amendments filed on 22 November 2005.

Regarding applicant's response to 101 rejection: The examiner withdraws the rejection of 101 based on the amendment filed on 22 November 2005.

Regarding applicant's response to 102 and 103 rejections:

Regarding Claim 1:

*Applicant argues that **Lynch** does not teach or suggest representing the rules in the **Directed Acyclic Graph (DAG)** as related to claim 1. Based on the argument and definition of Directed Acyclic graph submitted by applicant, the examiner is completely agree with the argument made by an applicant. According to the definition of DAG, **Lynch** discloses simple connections, which is undirected graph. It is therefore the 102 rejection is withdrawn.*

Further, the applicant argues that the rest of the references fail to cure the missing limitation of Directed Acyclic Graph (DAG) of Lynch. Examiner respectfully disagrees, as ***Andersen*** *teaches representing the rules in the* ***Directed Acyclic Graph (DAG)*** *(the diagram in page 20). The diagram in page 20 of* ***Andersen*** *shows the concise definition of a Directed Acyclic graph representation, which provided by an applicant. There are so many acyclic graphs shown in the reference of* ***Andersen****. However, the examiner specifically chooses the diagram shown in page 20 in order to show an arrow represents the edges to fulfill the rules of Directed Acyclic Graph.*

Accordingly, the examiner maintains 103 rejection.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-3, 5, 6, 10-23, and 26-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,515,524 issued to Lynch, referred herein as **Lynch**, in view of "An Introduction to Binary Decision Diagrams" Lecture notes for 49285 Advanced Algorithms E97, October 1997, by Henrick Reif Andersen, referred herein as **Andersen**.

As per Claim 1:

Lynch discloses a method of configuring a product comprising a number of components (col. 1 lines 10-13), the method comprising: providing, for each component, information relating to a group of alternatives for the component (col. 2 lines 17-20; col. 5 lines 63-66), defining rules relating to compatibilities between alternatives from different components (col. 1 lines 40-49), and iteratively configuring the product by repeatedly: choosing a component (derived classes 88; col. 9 lines 63-65; Fig. 3(1)), selecting an alternative from this component's group of alternatives (component types 90; col. 9 line 67), checking the DAG whether the alternative selected is compatible with other chosen alternatives from other components (col. 1 lines 40-42).

Lynch fails to disclose representing the rules in a Directed Acyclic Graph.

Andersen discloses representing the rules in a Directed Acyclic Graph (the diagram in page 20).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teachings of Lynch related to the field of computer-based system configuration with the teachings of Andersen related to construct a reduced ordered binary decision diagram (ROBDD) FROM A Boolean expression. The motivation for doing so would have been more convenient to show variables are ordered, nodes are unique and non-redundant tests are present (page 12, Fig. 5). Hence a skilled artisan having access to the teaching of Lynch and Andersen would have knowingly modified the teaching of Lynch with Andersen.

As per Claim 2:

Lynch discloses in which the iterative configuring is ended when an alternative is chosen for each component and when the chosen alternatives of the components are compatible (col.

14 lines 51-63).

As per Claim 3:

Lynch discloses using the DAG to determine, for at least one of the components (power supply 80; Fig. 3(1)), a subset of alternatives for the component (300 Watt and 500 Watt; Fig. 3(1)), so that each of the alternatives in the subset is compatible with the chosen alternatives from the other components (col. 1 lines 40-42), and providing this information to a user (col. 30 lines 34-36).

As per Claim 5:

Lynch discloses the steps of choosing a component and the alternative further comprise, for each of the components: using the DAG to check which of the alternatives of the component that are compatible with at least one of the chosen alternatives of each of the other components, providing a user with this information (col. 30 lines 34-36), allowing the user to select one of the alternatives that were compatible with at least one of each of the other component's chosen alternatives (col. 27 lines 59-58-67; col. 28 lines 1-4).

As per Claim 6:

Lynch discloses selecting or defining a subgroup of alternatives to the chosen component, checking the DAG for which of the alternatives in the subgroup that are compatible with chosen alternatives from other components (col. 1 lines 40-43), and providing information relating to which of the alternatives in the subgroup are compatible with chosen alternatives of other components (col. 30 lines 34-40).

As per Claim 10:

Andersen discloses a mathematical expression having a plurality of possible disjoint outcomes and a number of pointers corresponding to the number of possible outcomes of the expression (Fig 10a), wherein: a pointer of at least one of the nodes points to another of the

nodes, a pointer of at least one of the nodes points to one of the at least one terminal node, and at least one of the nodes being a top-most node from which one or more paths are defined from a top-most node to one of the at least one terminal node via one or more of the nodes and the pointers thereof, each node being part of at least one path (Fig. 10g).

As per Claim 11:

Andersen discloses providing one or more of the nodes with mathematical expressions each comprising a mathematical operator, each operator describing how the rules represented by the nodes pointed to by the pointers of the pertaining node are to be combined in order to represent the combined set of rules (Fig. 10a).

As per Claim 12:

Andersen discloses the mathematical expression of which is a Boolean expression ($x/0/1/\neg l/l \wedge l/l \vee l/l \Rightarrow l// \Leftrightarrow l$; page 6).

As per Claim 13:

Andersen discloses a mathematical expression which is a variable (*The classical calculus for dealing with truth values consists of Boolean variables x, y, …*; page 6 line 1).

As per Claim 14:

Andersen discloses the mathematical expressions of which are ordered according to a given ordering such that, for each node, the expression of the actual node is of a lower order than the expressions of any nodes pointed to by the pointers of the actual node ($x_1 < x_2 < x_3 < x_4$; Page 16);

As per Claim 15:

Andersen the steps of: identifying a first and a second node having the same expression and the pointers of which point to the same nodes, and having pointers pointing to the first node point to the second node (x1 and x2; Fig. 7, Fig. 10g)

As per Claim 16:

Andersen discloses representing each rule as a logical expression, from each logical formula constructing a partial DAG representing the set of possible solutions to the formula, constructing the DAG representing all the rules from the partial DAGs representing each of the logical formulas (Fig. 10a).

As per Claim 17:

Andersen discloses the step of providing the information relating to the alternatives for each component comprises: selecting Boolean variables for representing the individual alternatives of the component, providing an encoding for each of the alternatives of the component as a combination of Boolean values for the Boolean variables (x1, x2, and x3; Fig. 10g).

As per Claim 18:

Andersen discloses the step of representing each rule as a logical formula/expression comprises providing the Boolean variables relating to the alternatives to which the rule relates and interrelating the variables in accordance with the rule (page 6).

As per Claim 19:

Andersen discloses providing at least one type of terminal node and wherein, for each path comprising a such terminal node, the combination of all expressions and all pertaining outcomes relating to the pointers of the path relate to either compatible products or non-compatible products (Fig. 10g).

As per Claim 20:

Andersen discloses providing a first and a second type of terminal nodes, and wherein: for each path comprising a terminal node of the first type (1; Fig. 10g), the combination of all expressions and all pertaining outcomes relating to the pointers of the path relate to a

compatible product, and for each path comprising a terminal node of the second type (0; Fig. 10g), the combination of all expressions and all pertaining outcomes relating to the pointers of the path relate to a non-compatible product.

As per Claim 21:

Andersen discloses the first type of terminal node is adapted to represent "true", "one" or "1", and wherein the second type of terminal node is adapted to represent "false", "zero" or "0"(*Each subexperession can be viewed as the node of a graph. Such a node is either terminal in the case of the constants 0 and 1, or non-terminal*; page 10 first paragraph lines 1-2; Fig. 2).

As per Claim 22:

Andersen discloses representing each rule as a logical expression, from each logical formula constructing a partial DAG representing the set of possible solutions to the formula, constructing the DAG representing all the rules from the partial DAGs representing each of the logical formulas, the step of providing the information relating to the alternatives for each component comprises: selecting Boolean variables for representing the individual alternatives of the component, providing an encoding for each of the alternatives of the component as a combination of Boolean variables, and the step of selecting an alternative comprises: identifying Boolean variables relating to the other alternative(s) of the component and nodes comprising expressions relating to such other alternative(s), and in the DAG, identifying paths comprising such nodes and altering any terminal node(s) thereof of the first type to terminal node(s) of the second type (Fig. 10).

As per Claim 23:

Andersen discloses computing of the number of possibilities of different choices is performed by the following steps applied to the DAG and for each top-most node: starting from the topmost node and iteratively finding the number of possibilities represented by the actual

node, by performing the steps of: if the node is a terminal node, providing a "1" if the terminal node is of the first type and a "0" if it is of the second type, else: finding the number of possibilities represented by each node pointed to by a pointer of the actual node, and therefrom computing the number of possibilities represented by the node (Fig. 2).

As per Claim 26:

Andersen discloses a two-dimensional table having, in each of a plurality of rows thereof, information relating to a product comprising an alternative from each component, the alternatives being compatible, wherein the step of providing a rule comprises providing a rule relating to the information of each row, and wherein the step of representing the rules in the DAG comprises providing a disjunction of the rules (page 6 Fig. 1).

As per Claim 27:

Andersen discloses the step of checking the DAG whether an alternative is compatible comprises searching the DAG for a path from a topmost node to a terminal node, the search comprising: starting with the top-most node as an actual node, iteratively, until the actual node is a terminal node: evaluating the mathematical expression in the actual node and determining the outcome thereof in view of the alternatives chosen from other components, selecting the pointer of the node representing the outcome, selecting, as the actual node, the node pointed to by the selected pointer, providing information relating to the chosen alternatives, and the information relating to the path represents that the choices are compatible (Fig. 10).

As per Claim 28:

The limitation of claim 28 has already been discussed in the rejection of claims 20 and 27. It is therefore rejected under the same rationale.

As per Claim 29:

Andersen discloses the terminal nodes represent either "true" or "false", the information of a path relating to the identities of the variables in the mathematical expression(s) of the node(s) of the path and values or dependencies thereof, the identities and values/dependencies relating to chosen alternatives of components, the chosen components being compatible if the terminal node of the path represents "true" and the chosen components being incompatible if the terminal node of the path represents "false" (Page 14 a paragraph starting with "An immediate consequence is the following ....").

As per Claim 30:

Lynch discloses representing the rules in an actual DAG, selecting at least one of the components to be hidden (col. 16 lines 59-64).

3. Claims 4 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,515,524 issued to Lynch, referred herein as **Lynch**, and "An Introduction to Binary Decision Diagrams" Lecture notes for 49285 Advanced Algorithms E97, October 1997, by Henrick Reif Andersen, referred herein as **Andersen**, as applied to claims 1-3, 5, 6, 10-23, and 26-30 above, and further in view of U.S. Patent No. 6,430,531 issued to Polish, referred herein as Polish.

As per Claim 4:

Lynch fails to disclose providing a system with a speech synthesizer and the providing of information to a user further comprises providing the information by speech generated by the speech synthesizer.

Polish discloses providing a system with a speech synthesizer (Fig. 1 element 117) and the providing of information to a user further comprises providing the information by speech generated by the speech synthesizer (col. 3 lines 38-40).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teachings of Lynch related to configuring a product based on their compatibility and non compatibility with the teachings of Polish related to allow a user to engage in a verbal dialog with a database. The motivation for doing so would have been more convenient to a user to engage in a verbal dialog with a database at the time of configuring a product (abstract). Hence a skilled artisan having access to the teaching of Lynch and Polish would have knowingly modified the teaching of Lynch with Polish.

As per Claim 35:

Polish discloses providing a system with a speech recognizer (Fig. 1 element 103), and wherein the step of iteratively configuring the product further comprises choosing a component from a text recognized by the speech recognizer (col. 3 lines 26-29); and selecting an alternative from this component's group of alternatives from a text recognized by the speech recognizer (col. 3 lines 26-29).

4. Claims 7- 9, 24, 25, 32-34, 36-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,515,524 issued to Lynch, referred herein as **Lynch**, and "An Introduction to Binary Decision Diagrams" Lecture notes for 49285 Advanced Algorithms E97, October 1997, by Henrick Reif Andersen, referred herein as **Andersen**, as applied to claims 1-3, 5, 6, 10-23, and 26-30 above, and further in view of U.S. Patent No. 6,167,383 issued to Henson.

As per Claim 7:

Lynch fails to disclose at least once, defining information relating to limiting the alternatives of at least one of the components, and checking the DAG for which of the alternatives of the components is compatible with the limiting information.

Henson discloses at least once, defining information relating to limiting the alternatives of at least one of the components, and checking the DAG for which of the alternatives of the components is compatible with the limiting information (col. 9 lines 1-8).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teachings of Lynch related to configuring a product based on their compatibility and non compatibility with the teachings of Henson related to a web-based online store which include a configurator that provide user to configuring a product based on a user input. The motivation for doing so would have been more convenient to a user to find out whether the selected components are compatible with other components before placing an order. This information of compatible or non-compatible of components can help the user to save time and execute his/her order accordingly. Hence a skilled artisan having access to the teaching of Lynch and Henson would have knowingly modified the teaching of Lynch with Henson.

As per Claim 8:

Henson discloses the iterative configuring is ended upon request from a user (Fig. 6 element 106), and information is provided relating to all possible compatible products comprising at least one chosen alternative for each of the products for which an alternative is chosen (Fig. 3A element 75), and this information is provided to the user.

As per Claim 9:

Henson discloses the steps of obtaining a number of all possible compatible products comprising at least one chosen alternative for each of the products for which an alternative is chosen, and providing this information to the user (col. 9 lines 4-8).

As per Claim 24:

Henson discloses if the selected alternative is not compatible with other chosen alternatives, providing information relating to other chosen alternatives which are not compatible with the selected alternative, and providing this information to a user (col. 8 lines 22-27; Fig. 4 element 86).

As per Claim 25:

Henson discloses obtaining, by querying a database, information relating to alternatives relating of one or more components and/or information relating to compatibility between two or more alternatives to different components, and building one or more rules from the information obtained from the database (Abstract 15-18; col. 7 lines 46-53).

As per Claim 32:

Henson discloses identifying a user, performing the step of selecting an alternative of a component by the user through communication between a device controlled by the user and another device where the iterative configuration is performed, transmitting information relating to the checking of the DAG to the user (col. 5 lines 55-67; col. 6 lines 1-4; Fig. 1 and Fig. 2).

As per Claim 33:

Henson discloses identifying a user, prior to the iterative configuring: transmitting the DAG to a device controlled by the user, performing the iterative configuring on the user's device (col. 6 lines 18-30).

As per Claim 34:

Henson discloses obtaining information relating to one or more alternatives for components for which no alternatives have been chosen, each of the one or more alternatives being compatible with the chosen alternatives, and providing the user with this information (col. 9 lines 4-6).

As per Claim 36:

Henson discloses identifying a configurable device (Fig. 1 element 18) and an interface device (Display 42;col.6 line 2; Fig. 2 element 42), and storing the DAG representing the rules on the configurable device, uploading the DAG from the configurable device to the interface device, and in the step of iteratively configuring the product, performing the checking of the DAG whether the alternative selected is compatible with other chosen alternatives from other components on the interface device (Abstract).

As per Claim 37:

Henson discloses identifying a list of predetermined components in the configurable device and identifying a list of predetermined alternatives for these components in the configurable device (Fig. 5 element 92), and wherein the step of iteratively configuring the product further comprises performing the checking of the DAG whether the alternative selected is compatible with other chosen alternatives from other components and compatible with the predetermined alternatives on the interface device (col. 7 lines 57-66).

As per Claim 38:

Henson discloses identifying a list of observer components and a list of non-observer components (col. 9 lines 1-6),

As per Claim 39:

Henson discloses for each pair of component and alternative providing a classification of the state of the pair, adopting the classification to one of a list of outcomes comprising blocked (col.9 lines 1-4), selectable (Fig. 5 element 92), user selected (col. 9 lines 13-16), system selected (col. 9 lines 4-6), or forceable, providing a classification of blocked when the alternative cannot be chosen for the component even without considering choices of alternatives for other components (col.9 lines 1-4), providing a classification of selectable when the alternative for the component is compatible with the chosen alternatives from the other

components (Fig. 5 element 92), providing a classification of user selected when the alternative has already been chosen for the component (col. 9 lines 13-16), providing a classification of system selected when the alternative is the only choice for the component that is compatible with the chosen alternatives from the other components and the alternative has not been chosen by the user (col. 9 lines 4-6), providing a classification of forceable when the alternative can be chosen for the component but is incompatible with some of the other choices of alternatives of the other components, and providing information on the classification to a user.

As per Claim 40:

The limitation of claim 40 has already been discussed in the rejection of claim 1. It is therefore rejected under the same rationale.

As per Claim 41:

Henson discloses a computer-readable medium (floppy disk; col. 6 lines 12).

As per Claim 42:

The limitation of claim 42 has already been discussed in the rejection of claim 40. It is therefore rejected under the same rationale.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Hannu Peltonen, Tomi Mannisto, Reijo Sulonen, and Kari Alho, "An Object Model for Evolutionary Configuration Management," Helsinki Univeristy of Technology, 1999 teaches a method of configuring product.

Giuseppe Attardi, Antonio Cisternino, and Maria Simi, "Web-Based Configuration Assistants," 1998 teaches a method of configuring a product.

U.S. Patent No. 5,825,651 issued to Gupta et al teaches a method of configuring a product.

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

7. Any inquiring concerning this communication or earlier communication from the examiner should be directed to Kibrom K. Gebresilassie whose telephone number is (571) 272-8571. The examiner can normally be reached on Monday-Friday, 8:30 am to 4:30 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner supervisor, Kamini shah can be reached at (571) 272-2279. The official fax number is (571) 273-8300. Any inquiring of a general nature relating to the status of this application should be directed to the group receptionist whose telephone number is (571) 272-3700.

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